CLAIMS

1. An alignment detection system for determining whether a modulated illumination field in an imaging system employing an illumination modulator is mis-aligned, said alignment detection system comprising:

modulator adjustment means for providing a test pattern on the illumination modulator;

a detector for receiving a modulated illumination field from said illumination modulator;

sampling means for determining at least two sample values (A and C) for each of two areas of said modulated illumination field respectively; and

evaluation means for determining whether the value $|A-C|$ is greater than a threshold value.

2. The alignment detection system as claimed in claim 1, wherein said sample values A and C are for areas that are within about 20% of each end of the modulated illumination field.

3. The alignment detection system as claimed in claim 1, wherein said imaging system provides zero order imaging.

4. The alignment detection system as claimed in claim 1, wherein each of said sample values (A and C) is provided by an average of about 100 sample values.

5. The alignment detection system as claimed in claim 1, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides ten shutters followed by ten shutters off across the modulator.

6. An alignment detection system for determining whether a modulated illumination field in an imaging system employing an illumination modulator is mis-aligned, said alignment detection system comprising:

modulator adjustment means for providing a periodic alternating test pattern on the illumination modulator;

a detector for receiving a modulated illumination field from said illumination modulator;

sampling means for determining at least two average sample values (A, B and C) for each of two areas of said modulated illumination field respectively; and

evaluation means for determining whether one of the values $|A-B|$, $|A-C|$, or $|B-C|$ is greater than a threshold value.

7. The alignment detection system as claimed in claim 6, wherein said sample values A and C are for areas that are within about 20% of each end of the modulated illumination field.

8. The alignment detection system as claimed in claim 6, wherein said imaging system provides zero order imaging.

9. The alignment detection system as claimed in claim 6, wherein each of said sample values (A, B and C) is provided by an average of about 100 sample values.

10. The alignment detection system as claimed in claim 6, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides ten shutters followed by ten shutters off across the modulator.

11. A method of detecting whether a modulated illumination field in an imaging system is mis-aligned, said method comprising the steps of:

providing a test pattern on the illumination modulator;

receiving a modulated illumination field from said illumination modulator at a detector;

determining at least two sample values (A and C) for each of two areas of said modulated illumination field respectively; and

determining whether the value $|A-C|$ is greater than a threshold value.

12. The method as claimed in claim 11, wherein said sample values A and C are for areas that are within about 20% of each end of the modulated illumination field.

13. The method as claimed in claim 11, wherein said imaging system provides zero order imaging.

14. The method as claimed in claim 11, wherein each of said sample values (A and C) is provided by an average of about 100 sample values.

15. The method as claimed in claim 11, wherein said illumination modulator includes a grating light valve and said test pattern on said illumination modulator provides ten shutters followed by ten shutters off across the modulator.

16. An error detection system for determining whether a modulated illumination field in an imaging system employing an illumination modulator is in error, said error detection system comprising:

modulator adjustment means for providing a test pattern on the illumination modulator;

a detector for receiving a modulated illumination field from said illumination modulator;

sampling means for obtaining a plurality of sample values of said modulated illumination field; and

evaluation means for determining an overall alignment quality by comparing a width of a histogram generated by the plurality of sample values with a threshold value.